TEC DIVISION OF OPTICAL EQUIPMENT (TEC-DOE)

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Thunder Energies Corporation
Division of Optical Equipment

Figures

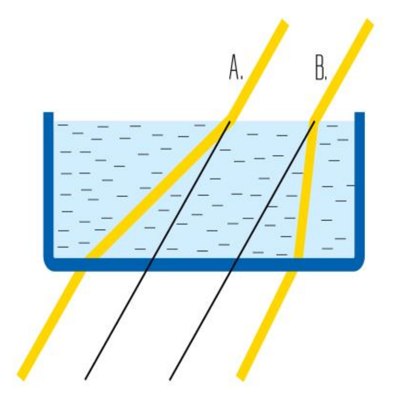

Figure 1

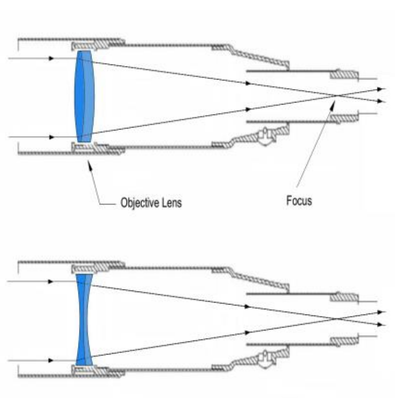

Figure 2

GENERAL INFORMATION ON THE USE OF SANTILLI TELESCOPES WITH CONCAVE LENSES FOR THE DETECTION OF ANTIMATTER GALAXIES, ANTIMATTER COSMIC RAYS AND ANTIMATTER ASTEROIDS

1. Foreword

Dr. R. M. Santilli, Chief Scientist of Thunder Energies Corporation (see his Curriculum , Prices and Nominations , Publications in antimatter , and the General Archives) has conducted three decades of mathematical, theoretical and experimental studies on antimatter initiated in the early1980s when he was at at Harvard University under DOE support.

This extended research has produced basically new telescopes, today known as *Santilli telescopes,* which have been conceived, designed, constructed, tested and produced to detect antimatter galaxies, antimatter cosmic rays and antimatter asteroids (international patent pending irrevocably owned by TEC without royalty payments).

Since matter and antimatter annihilate at contact into light, as a condition for its existence at the classical macroscopic level, antimatter must have all characteristics opposite to those of matter. For instance, matter-light has a positive index of refraction while, as a condition for its existence, antimatter-light must have a negative index of refraction (Figure 1).

Consequently, the focusing of images of matter-light require **convex lenses** as occurring in the Galileo telescopes, while the focusing of images of antimatter-light requires **concave lenses,** as occurring in Santilli telescopes (Figure 2).

The above features imply that none of the refractive Galileo-type telescopes existing on Earth or in space can detect antimatter-light because they are all based on **convex** lenses.

Similarly, we will never see images of antimatter-light with our naked eyes because our cornea is convex, and as such, it disperses images of antimatter-light all over our retina. The sole possibility to detect images of antimatter-light is via images on a digital or film camera.

2. Detection of antimatter galaxies

Figure 3

The Santilli telescopes should always be used in pair with optically aligned conventional Galileo telescopes, both telescopes having the same diameter of the primary lenses. the same curvature of the primary lenses and the same focal distances, with the understanding that curvature and focal distances become negative for the Santilli telescopes (Figure 3).

Under these conditions, the detection of antimatter galaxies with a pair of the Galileo and the Santilli telescopes can be made according to the following rules (consult TEC for more technical information):

1) All alignments in the night sky are done with the Galileo telescope which is generally equipped with an eyepiece;

2) All images are taken from equal digital or film cameras in both the Galileo and the Santilli telescopes as shown in Figure 3;

3) Whether digital or film, the images from the two telescopes are subjected to the same magnification, until faint images become detectable over the background;

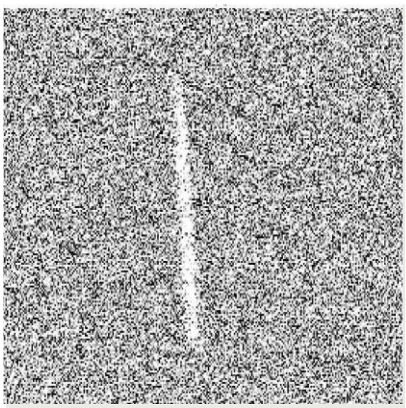

Figure 4

4) Digital cameras are sufficient for initial scans of the night sky, although much more detailed views can be obtained via a film camera; and

5) Images focused by the Santilli telescope are considered valid, if and only if, they do not exist in the images from the Galileo telescope under the same magnification.

Since antimatter galaxies cannot exist in our galactic environment and can only exist far away, their images are faint. Consequently, the detection of their images are suggested to be done with long camera exposures, such as exposures for 15 seconds.

This long exposure generates **streaks** in the digital cameras that, as such, can be clearly distinguished from the background as well as from impurities or imperfections of the cameras since said impurities and imperfections remain stationary.

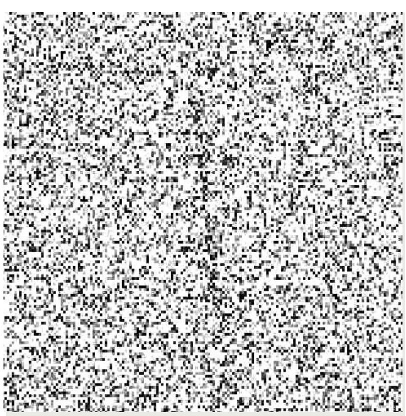

Figure 5

The tracking of antimatter galaxies with the Santilli telescope is discouraged at the moment. This is due to the fact that, in case of tracking, antimatter galaxies will produce small stationary dots in the camera that, as such, cannot be distinguished with certainty from camera impurities or anomalies.

Matter-Antimatter annihilation also requires that antimatter-light must have energy opposite that of matter-light, as predicted by P. A. M. Dirac in 1932 and verified by R. M. Santilli in his decades of research on antimatter (see the theoretical confirmation and the experimental confirmation).

Under 15 second exposure, the Galileo telescope creates an image of matter galaxies consisting of **streaks of light** over the conventional background (Figure 4) while, by contrast, the detection of antimatter galaxies with the Santilli telescope creates **streaks of darkness** (Figure 5) over the conventional background.

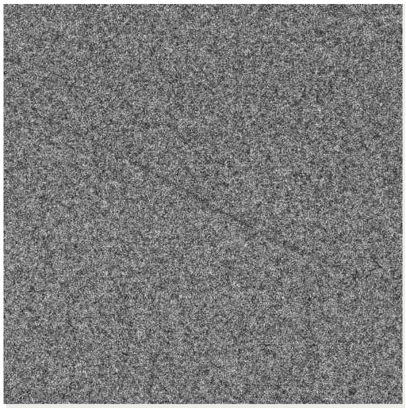

Figure 6

This is essentially due to the fact that the negative energy of antimatter-light annihilates in the camera pixel the positive energy due to matter-light of the background, resulting in this way in streaks of darkness.

It then follows that a conventional matter-light background is necessary (under our current knowledge) for the detection of antimatter galaxies because, in its absence, no image of far away antimatter galaxies could be visible in the camera due to darkness of the background.

This is the reason all detections of the night sky with the Santilli telescope have been done to date at sea level where the conventional matter-light background is sufficient to distinguish streaks of darkness.

3. Detection of antimatter asteroids

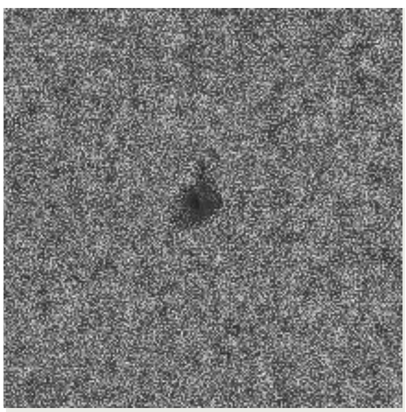

Figure 7

The detection of antimatter asteroids follows rules different than those for antimatter galaxies. Since matter and antimatter repel each other gravitationally (antigravity), antimatter asteroids are repelled by Earth's gravitation and can impact Earth only when they have certain value of kinetic energy computed by Dr. S. Beghella-Bartoli in the scientific work

Therefore, antimatter asteroids hitting Earth must have said **minimal impact kinetic energy** or more; they annihilate at contact with our matter atmosphere; and they produce instantaneous streaks of darkness (under 15 second exposure) in the digital or film camera generally in the downward direction of penetration in our atmosphere. Streaks of darkness over the matter-light background in the Santilli telescope under 15 second exposure are candidates for the detection of antimatter asteroids when they have a direction different than those of the streaks of matter and antimatter galaxies (Figure 6).

It should be indicated that, at this stage of our knowledge, we do not know how to detect antimatter asteroids in space prior to their impact on Earth, because our matter-light (whether from our Sun or from our lasers) could be absorbed without reflection when hitting antimatter asteroids that generally are at absolute zero degree temperature.

One of the reasons Thunder Energies Corporation is involved in the study of antimatter light is precisely due to the need to develop new technologies for the advance detection of antimatter asteroids because, in the event we are hit by a small antimatter asteroid the size of a football, all our military, industrial and civilian communications will be disrupted for days due to the extreme excitation of our atmosphere from the radiations emitted by

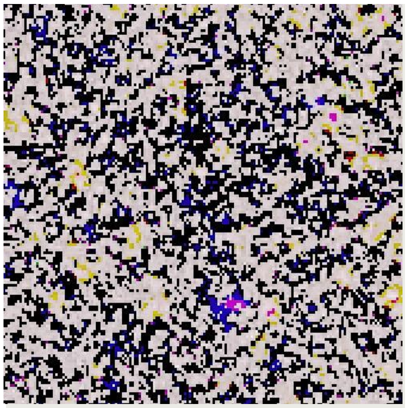

Figure 8

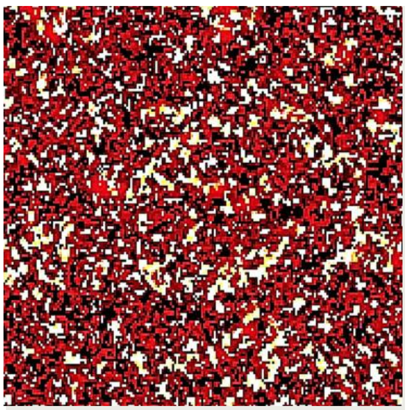

Figure 9

the matter-antimatter annihilation, as suggested by Dr. R. Anderson et al. in the scientific work

4. Detection of antimatter cosmic rays

The detection of antimatter cosmic rays follows rules different than those for the detection of antimatter galaxies and antimatter asteroids. As it is the case for conventional cosmic rays of matter, antimatter cosmic rays are the result of primordial explosions in the universe.

Consequently, antimatter cosmic rays reach our atmosphere at very high speeds; they annihilate in the upper layer of our atmosphere; and their sole detection is that via the antimatter-light produced by their annihilation that reaches us at the ground level.

The detection of antimatter cosmic rays via the Santilli telescope is then provided by **dots of darkness** over the matter-light background despite the 15 seconds exposure, which feature confirm the virtually instantaneous propagation in our atmosphere of antimatter-light originated by the antimatter cosmic rays (Figure 7).

It should be clarified that the instantaneous dots of darkness created by antimatter cosmic rays by the Santilli telescope *are not* caused by ordinary light since the same dots are absent in the Galileo telescope. Also, antimatter-light is physically different than ordinary matter-light (see Figure 1 for the different refraction).

5. Expected new technologies

Due to the democracy between matter and antimatter requested by physical laws (such as the PCT theorem), the above advances predict the possible future development of a basically new digital camera with *pixels detecting photons with negative energy,* as a complement of current pixels that solely detect photons with positive energy. In the eventuality, the indicated new camera is developed, the matter-light background is not needed for the detection of antimatter images.

Dr. Santilli has developed his telescope with concave lenses also for the study of other forms of light besides antimatter light. Thunder Energies Corporation is supporting research for the possible conversion of matter-light, from its conventional form with positive index of refraction, into a form with negative index of refraction without its necessary origination from antimatter (TEC international patent pending).

In principle, it is possible that such a conversion has already been achieved by rendering invisible its source via our current detecting means, since the only operate for light with a positive index of refraction. Therefore, small pairs of Galileo and Santilli telescopes solely usable for short distance detections can be useful for the surveillance of sensitive installations or for the detection of anomalous events in our atmosphere (see the detections with Santilli telescope of Figures 8 and 9 whose interpretation is unknown).

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General Review

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